

once the above disclosure is fully appreciated. It is intended that the following claims be interpreted to embrace all such variations and modifications.

1. An apparatus comprising:
 - a processor configured to cause a device to:
 - conduct wireless communications using one or more antennas according to a plurality of radio access technologies (RATs) associated with corresponding operating frequency bands;
 - identify:
 - one or more applications running on the wireless communication device;
 - for each application of the one or more applications, which of the plurality of RATs supports the application; and
 - for each application, which respective one or more operating frequency bands of the corresponding operating frequency bands are used by the application; and
 - tune the one or more antennas based on one or more of:
 - a respective type of each application;
 - the respective one or more operating frequency bands used by each application; or
 - respective signal conditions associated with the one or more frequency bands used by each application.
2. The apparatus of claim 1, wherein the processor configured to further cause the device to conduct the wireless communications using carrier aggregation;
 - wherein the corresponding operating frequency bands include primary component carriers and secondary component carriers in the carrier aggregation.
3. The apparatus of claim 2, wherein the processor is configured to further cause the device to:
 - determine, for each application, whether the respective one or more operating frequency bands used by the application include primary component carriers; and
 - tune the one or more antennas further based on whether the respective one or more operating frequency bands used by the application include primary component carriers.
4. The apparatus of claim 3, wherein the processor is configured to further cause the device to:
 - tune the one or more antennas according to first tuner-settings in the event of one or more of the following:
 - a frequency band of the primary component carrier is not within a specified frequency range;
 - the primary component carrier is not used by any applications of a specific type; or
 - a receive signal strength indicator at the wireless communication device is not below a specified threshold; and
 - tune the one or more antennas according to second tuner-settings in the event of:
 - the frequency band of the primary component carrier is within the specified frequency range;
 - the primary component carrier is used by an application of the specific type; and
 - the receive signal strength indicator at the wireless communication device is below the specified threshold.
5. The apparatus of claim 4, wherein the application of the specific type is a voice-over-cellular-data application.
6. The apparatus of claim 1, wherein the processor is configured to further cause the device to periodically per-

form the identifying to determine if a present tuning of the one or more antennas needs to be adjusted.

7. The apparatus of claim 6, wherein the processor is configured to further cause the device to periodically perform the identifying according to timing based on one or more of:

- a system timer; or
- one or more interrupt events.

8. The apparatus of claim 1, wherein the respective type of the application corresponds to:

- a real-time voice call;
- a real-time video call;
- a real-time data transfer; or
- a non-real-time data.

9. A device including:

radio circuitry communicatively coupled to one or more antennas, configured to facilitate wireless communications of the device according to a plurality of radio access technologies (RATs) associated with corresponding operating frequency bands; and

a processor communicatively coupled to the radio circuitry and configured to:

- identify:
 - one or more applications running on the wireless communication device;
 - for each application of the one or more applications, which of the plurality of RATs supports the application; and
 - for each application, which respective one or more operating frequency bands of the corresponding operating frequency bands are used by the application; and
- tune the one or more antennas based on one or more of:
 - a respective type of each application;
 - the respective one or more operating frequency bands used by each application; or
 - respective signal conditions associated with the one or more frequency bands used by each application.

10. The device of claim 9, wherein the processor configured to further cause the device to conduct the wireless communications using carrier aggregation, wherein the corresponding operating frequency bands include primary component carriers and secondary component carriers in the carrier aggregation.

11. The device of claim 10, wherein the processor is configured to further cause the device to:

- determine, for each application, whether the respective one or more operating frequency bands used by the application include primary component carriers; and
- tune the one or more antennas further based on whether the respective one or more operating frequency bands used by the application include primary component carriers.

12. The device of claim 11, wherein the processor is configured to further cause the device to:

- tune the one or more antennas according to first tuner-settings in the event of one or more of the following:
 - a frequency band of the primary component carrier is not within a specified frequency range;
 - the primary component carrier is not used by any applications of a specific type; or
 - a receive signal strength indicator at the wireless communication device is not below a specified threshold; and